G-93
CORAL GABLES CONTROL STRUCTURE

This structure is a reinforced concrete, gated spillway on the Coral Gables Canal (C-3) at Red Road in the City of Miami. The discharge is controlled by two vertical lift gates. Operation of the gates is manually controlled. An automatic device has not been installed due to the possibility of injury to manatees. The structure replacement was completed in January 1990.

PURPOSE

This structure maintains optimum upstream water control stages; it passes the design flood flows, resulting from a 10-year storm (about 40% of the Standard Project Flood), plus a small discharge from the C-4 basin, without exceeding the upstream flood design stage and restricts downstream flood stages and discharge velocities to non-damaging levels; and it prevents saline intrusion during periods of high flood tides.

OPERATION

This structure together with S-25B on the Tamiami Canal (C-4) is operated to maintain the optimum headwater elevation of 2.8 feet. Since this structure is manually operated, required releases are normally made by S-25B. During storm events, the gates will be opened.

The District added automatic control and manatee protection device at G-93 in 2002. G-93 began to be operated automatically on January 31, 2003. The high range automatic operation is actuated by the headwater elevation as follows:

When headwater elevation rises to 3.5 feet, the gate begins to open.

When headwater elevation rises or falls to 3.0 feet, the gate becomes stationary.

When headwater elevation falls to 2.5 feet, the gate begins to close.

The low range automatic operation is actuated by headwater elevation as follows:

When headwater elevation rises to 2.5 feet, the gate begins to open.

When headwater elevation rises or falls to 2.2 feet, the gate becomes stationary.

When headwater elevation falls to 1.0 feet, the gate begins to close.

The minimum gate opening is 2.5 feet for manatee protection.

FLOOD DISCHARGE CHARACTERISTICS

	Design
Discharge Rate	640 cfs
	40% SPF
Headwater Elevation	4.5

Tailwater Elevation 3.0

Type Discharge Submerged Controlled

DESCRIPTION OF STRUCTURE

Type: Fixed crest reinforced concrete gated spillway

Weir Crest

Net Length: 20.0 feet

Elevation: -1.8 feet

Service Bridge Elevation: 7.58 feet

Water Level Which Will Bypass Structure: 6.0 feet

Gates:

Number: 2

Size: 5 feet high by 10 feet wide

Type: Vertical Lift Roller Gate

Control: Manual

Bottom elevation of gate full open 6.7 feet

Top elevation of gate full closed 3.2 feet

Lift Mechanism

Normal Power Source: Commercial Electricity

Emergency Power Source: LP Gas power generator

DEWATERING FACILITIES

Storage Miami Field Station

Type Galvanized beams

Size Two W8 X 24 beams, each 10' 10" long

HYDRAULIC AND HYDROLOGY MEASUREMENTS

Water Level Remote digital headwater and tailwater recorders

Gate Position Remote digital recorder on all gates